Defense Information Infrastructure (DII)
Common Operating Environment (COE)

Developer Documentation Requirements

Version 2.0

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Defense Information Systems Agency
Joint Interoperability and Engineering Organization

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Preface

The Defense Information Infrastructure (DII) Common Operating Environment (COE) developer documentation requirements presented herein will establish the requirements for the type, content, and format of all documentation required by contract, or other binding agreement, to be submitted with the delivery of DII COE software. This document is to be used as guidance for the documentation requirements for all DII COE software developers. Any and all elements of this document are subject to change (without formal notification) due to the evolutionary nature of the DII COE documentation requirements and the iterative feedback process in place for users, owners, and developers. However, it is the intent of the Defense Information Systems Agency (DISA) that as documentation requirements change, every effort will be made to communicate those changes to the technical user community.

Comments and other feedback on this document should be directed to the DII COE Hotline:

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1. Introduction

This section provides the purpose, scope, implementation, vision, strategy, organization, and references of this DII COE Developer Documentation Requirements document.

1.1 Purpose

This document establishes the requirements for the type, content, and format of all documentation required by contract, or other binding agreement, to be submitted with the delivery of DII COE software and application platforms for certification. The documentation requirements were derived, in part, from Military Standard (MIL-STD) MIL-STD-498 *Software Development and Documentation*, dated 5 December 1994, and customized for COE documentation. It is the purpose of this document to define a set of requirements for DII COE documentation applicable to all DII COE developers that will achieve useful, well-organized, and usable DII COE documents. It is also intended to result in documentation that is consistent in the location, content, and presentation of information regardless of the document's origin.

The primary objectives of this document are to:

1. Establish the software documentation requirements that apply to all COE software segment developers and application platform providers.
2. Provide the basic content requirements for each type of DII COE software support document.
3. Standardize the format (look and feel) of all DII COE documentation.

1.2 Scope

This document provides the overall requirements for producing and maintaining DII COE documentation. Specifically, the DII COE baseline requirements for software documentation are specified to identify, unify, and standardize all DII COE developer documents. These requirements are applicable to Department of Defense (DOD) and developer organizations involved in the development and maintenance of DOD mission and systems applications where DII COE documentation requirements must be met. These requirements include the representative environment of the current DII, including the kernel, kernel platforms, tools, and application program interfaces (API).

1.3 Implementation

All deliverables, whether included in the kernel, kernel platform, or software form, delivered for inclusion into DII COE Version 3.3 or subsequent releases, must adhere to the requirements in this document in its entirety.

1.4 Vision

The vision for DII COE documentation is to establish a technical documentation standard which facilitates both documentation development and developer productivity, while providing DII COE document recipients a product of consistent quality. The requirements specified in this document support DII COE goals and objectives and will facilitate DISA's Configuration Management (CM) process. The standardization of DII COE documentation will establish a common file

format for all documentation and facilitate shared access, review, update, and release of DII COE information across a variety of DOD organizations.

1.5 DII COE Documentation Strategy

The DII provides all DOD elements with services to meet the information processing and communications needs of DOD users worldwide. The integrating mechanism of the DII is the COE. The DII COE provides a set of integrated services that can be tailored to support the diverse needs of COE developers, DOD system developers, DOD mission application developers, and operational system sites. Since the COE exists in multiple configurations, COE documentation is maintained at the component level to allow documentation users the ability to obtain the COE documentation they need. This strategy provides documentation which can be customized to match a particular COE configuration.

Part of the DII COE strategy also provides the following list of constituent groups with a set of documentation to support each released COE operating system platform.

1. System software developers
2. System administrators
3. DII COE software subscribers
4. Platform suppliers

1.6 Document Organization

This document is organized into the following three sections:

Section 1 - Introduction. Provides the purpose, scope, implementation, vision, and strategy for documentation requirements.
Section 2 - DII COE Documentation Requirements. Specifies the DII COE documentation delivery requirements and identifies and describes various types of software documentation.
Section 3 - DII COE Documentation Format Requirements. Establishes the requirements for a standard document format (layout) and provides guidelines for using the DII COE document templates.

The following Appendices are included in this document:

Appendix A:	List of Acronyms
Appendix B:	Software Version Description (SVD) Sample Outline
Appendix C:	Installation Procedures (IP) Sample Outline
Appendix D:	Software Product Specification (SPS) Sample Outline
Appendix E:	Database Design Document (DBDD) Sample Outline
Appendix F:	System Administrator's Manual (SAM) Sample Outline
Appendix G:	User's Manual (UM) Sample Outline
Appendix H:	Programmer's Manual (PM) Sample Outline
Appendix I:	Application Program Interface (API) Reference Manual (APIRM) Sample Outline
Appendix J:	Software Test Plan (STP) Sample Outline

Appendix K: Software Test Description (STD) Sample Outline
Appendix L: Software Test Report (STR) Sample Outline
Appendix M: Software Design Description (SDD) Sample Outline
Appendix N: Interface Design Document (IDD) Sample Outline
Appendix O: Errata Sheet (ES) Sample Outline
Appendix P: Example Title Page

1.7 References

The following documents are referenced in this document:

MIL-STD-498, Military Standard *Software Development and Documentation*, dated 5 December 1994.

Government Printing Office (GPO) *Style Manual*, 28th Edition, 1984, Stock Number 022-000-00212-1.

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2. DII COE Documentation Requirements

The primary objectives of this guide are to: (1) identify standardized outlines and content guidelines for specific developer documentation and (2) facilitate the adoption of a standard word processing format for all DII COE documentation.

Standardizing DII COE documentation eliminates many problems experienced by document managers and end-users, provides consistency regarding the identification, appearance, and content of documents, and supports efficient document receipt and consolidation. All DII COE developer documentation shall comply with the format requirements specified in Section 3 and shall be submitted using the designated word processing format. As new capabilities become available to the DOD community, they will be considered for potential adoption as the new standard word processing format.

2.1 Documentation Delivery Requirements

To facilitate a greater degree of integration among various DII COE documents, Microsoft (MS) Word for Windows has been designated as the standard word processor format for all DII COE developer documentation. The adoption of a common format for developer documentation requires that all DII COE documents be delivered using any version of MS Word for Windows 6.0, hereafter referred to as MS Word 6.0. Exceptions to the following requirements must be approved by the DII COE Chief Engineer and coordinated with CM.

2.1.1 Delivery Requirements

1. Software deliveries must be accompanied by the associated documentation required by contract, or other binding agreement.
2. The developer shall provide one (1) camera-ready, unbound hardcopy of the complete set of required documentation.
3. The developer shall provide, at a minimum, one (1) electronic copy, in MS Word 6.0 file format, of each document. Refer to paragraph 2.1.2 for additional electronic copy requirements.
4. All hardcopy documents shall be a printout of the delivered electronic file(s), i.e., printouts of the electronic copy in MS Word 6.0 (or graphics file format, refer to paragraph 2.1.2).
5. All documentation (including the delivery letter) shall identify the software product version number(s) and the corresponding COE version number(s).

2.1.2 Electronic Copy Requirements

1. One (1) electronic copy of all documents shall be in MS Word 6.0 file format. An additional electronic copy of each document in Hypertext Markup Language (HTML) version 3.2 format is also required, unless otherwise indicated by contract, or other binding agreement.
2. It is essential that the delivered electronic copy be in native editor format to maintain the original layout of the documents submitted. Files converted to MS Word 6.0 shall be formatted to meet the document format requirements specified in Section 3 of this document.
3. All graphics, tables, and charts shall be embedded in the associated MS Word 6.0

document file(s). Separate graphic files shall be in Graphics Interchange Format (.GIF) or Joint Photographic Expert Group (.JPEG or .JPG depending on the platform) file format.

4. Multiple electronic files delivered on a diskette shall be organized using a directory structure as shown in Figure 2-1.

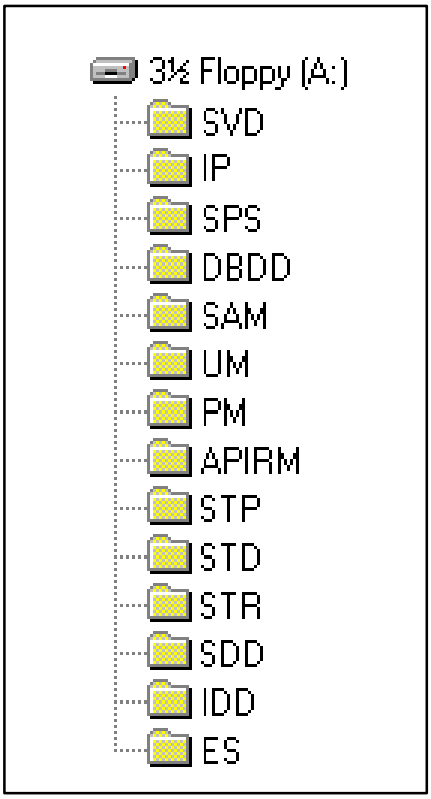

Figure 2-1. Sample Directory Structure

5. Electronic copy file names shall be descriptive (such as chapter1, section1, appendxa). All electronic copy files shall use standard file extensions in the file names (i.e., .DOC, .GIF, etc.).
6. Self-extracting files (.EXE) are permissible provided they comply with previously stated guidance.
7. Each diskette label shall contain, at a minimum, the document title, document version number, COE platform(s), material date, file name, file format (word processor/graphic format), and compression utility used (if applicable). Special instructions, such as file decompression instructions, needed to use the files shall be included on the disk in a *readme* text file (README.TXT) in the root directory.

2.2 Required Software Support Documents

2.2.1 Required Documentation

The following list of documents has been identified by DISA Operational Support Facility (OSF) CM as necessary to support DII COE software deliveries. Therefore, within the scope of the obligations resulting from contracts and other binding agreements, the following documents are required.

1. Software Version Description (SVD)
2. Installation Procedures (IP)
3. Software Product Specification (SPS)
4. Database Design Document (DBDD)
5. System Administrator's Manual (SAM)
6. User's Manual (UM)
7. Programmer's Manual (PM)
8. Application Program Interface (API) Reference Manual (APIRM)
9. Software Test Plan (STP)
10. Software Test Description (STD)
11. Software Test Report (STR)
12. Software Design Description (SDD)
13. Interface Design Document (IDD)
14. Errata Sheet (ES)

All deliveries shall be accompanied by the software support documentation listed as required in Table 2-1, "Document Requirements Matrix", unless a waiver has been approved by DISA (refer to Section 2.2.2). A short description for each required document is provided in Section 2.3. Annotated outlines for each document are provided as appendices to this document. A set of corresponding MS Word 6.0 document templates, in DII COE document format (refer to Section 3), is available from the DII COE CM. The contents of the outlines and templates for these documents are based upon MIL-STD-498, where applicable.

Table 2-1. Document Requirements Matrix

Document Required	Account Group	Software	Data	Database	Patch	Kernel	Kernel Platform
SVD	R	R	R	R	R	R	R
IP	R	R	R	R	R	R	R
SPS	AGR	AGR	AGR	AGR	AGR	AGR	
DBDD	R			R			
SAM	R	R/C		R/C		R	R/C
UM	R	R/C		R/C		R	R/C
PM	R	R/C	R	R/C		R	R/C
APIRM	R	R/C	R	R/C		R	R/C
STP	R	R	R	R		R	
STD	R	R	R	R	R	R	
STR	R	R	R	R	R	R	R
SDD	AGR	AGR	AGR	AGR	AGR	AGR	
IDD	AGR	AGR	AGR	AGR	AGR	AGR	
ES	AGR	AGR	AGR	AGR	AGR	AGR	AGR

Notes:

R: Required documents

R/C: If the segment being delivered is a COTS product, then the developer must deliver a copy of the manufacturer's documentation which provides the equivalent information.

AGR: At Government Request. These documents are to be delivered at the request of the DII COE Chief Engineer.

The Software Product Specification, the Software Design Description, and the Interface Design Document will be deliverable at Government request only.

A draft of the Software Test Plan will be due at the time of the initial Critical Design Review. The final will be due at the time of the first delivery of the new segments. Updates to this document will be provided on an as required basis or at the Government's request.

2.2.2 Waivers to Documentation

DISA's Engineering organization performs a Critical Design Review (CDR) of all software submitted for inclusion in the DII COE. The CDR board will grant approval before a developer can submit a software package to CM. Waivers to the requirements specified in this document may be submitted to the DII COE Chief Engineer in one of two ways: at the CDR (first time software submission) or by formal written request (subsequent software delivery). The developer shall submit a written request for a waiver to the DII COE Chief Engineer for each document required but not provided. Each request shall include a short explanation of the reason for the waiver. The Software Version Description shall identify any and all approved waivers for the software and documentation.

2.3 Document Descriptions

2.3.1 Software Version Description (SVD)

The SVD identifies and describes in detail the hardware, software, and the documentation baseline of the deliverable item, to include a list of known problems and work-arounds, if applicable. The SVD shall identify the exact product version number of the software. It shall briefly state the purpose and describe the functionality provided by the software. The SVD shall provide a synopsis of:

1. The software name
2. Product version release number
3. Reason for the software change, if delivery is not initial version (i.e., Why developer is incrementing the COE version number)
4. Designation of government off-the-shelf (GOTS) or commercial off-the-shelf (COTS) with licensing information
5. A list of applicable platforms and operating systems
6. RAM and hard disk space required by the deliverable
7. Information with respect to prerequisites and processor compatibility
8. Operating system and version compatibility
9. List of problems that have been fixed
10. List of known anomalies (problems/bugs) with recommended work-arounds when available
11. List of software dependencies

A separate section will be included in the SVD to provide a detailed list of what documentation is pertinent to segment software being delivered. This list will include:

1. Title of document
2. Version number
3. CM number

The SVD for GOTS software is equivalent to the Software Release Notice (SRN) used in commercial releases. A sample outline for the SVD is provided in Appendix B.

2.3.2 Installation Procedures (IP)

The IP provides step-by-step procedures for installing the deliverable unit, including hardware and software requirements. It covers the media, loading, verification and initialization of the software package (COE deliverable unit) or system. The IP should provide a checklist for the verification of the installation after initialization has occurred, including the files created (or exploded) as well as the data, files or database names that the installation will create or generate. A sample outline for the IP is provided in Appendix C.

2.3.3 Software Product Specification (SPS)

The SPS specifies the executable software, source files, and software support information, including software design and build information, by inclusion or reference. It provides procedures for compiling, building, and modifying copies of the subject software. It identifies the

requirements satisfied by the software and provides requirements traceability. The SPS establishes the criterion for valid duplication of software. It also describes the computer resource utilization requirements for the subject software. A sample outline for the SPS is provided in Appendix D.

2.3.4 Database Design Document (DBDD)

The DBDD contains a description of the database design, data organization, creation parameters, internal file relationships, record and file descriptions, and other details relating to the database design. It provides the essential information for database administrators and analysts to install and verify the generation of the database and to manage the database, the data, and the records. A sample outline for the DBDD is provided in Appendix E.

2.3.5 System Administrator's Manual (SAM)

The SAM provides specific guidance for System Administrators to support COE systems, software installation and software maintenance. It covers the administrative tasks and procedures required to maintain system integrity and perform system maintenance and operation. These may include the entry of new user identification, the attributes of security, the establishment of links between the systems and other deliverable items, or the activation or de-activation of telecommunication tasks or lines, etc. A sample outline for the SAM is provided in Appendix F.

2.3.6 User's Manual (UM)

The UM provides specific detailed information and guidance on the use of the deliverable item provided to users. It describes the behavior of the system and software, from the user's point of view, including the actions that can be taken by users and the results of those actions. This may include menus and displays, messages and warnings, commands and controls, and other information a user may need to know. A sample outline for the UM is provided in Appendix G.

2.3.7 Programmer's Manual (PM)

The PM provides specific guidance to application and segment developers. It describes the development environment, identifies constraints, and provides details to assist developers in writing, building, and running applications. The PM provides procedures, references, and other information developers may need to know. A sample outline for the PM is provided in Appendix H.

2.3.8 Application Program Interface (API) Reference Manual (APIRM)

The APIRM describes the public or COE-approved APIs provided by the subject software. It provides details about each API, including the purpose, the functionality, the syntax, and the related inputs and outputs. The APIRM also provides information on the use of each API (by example or description) to assist application developers in determining how to use each API. A sample outline for the APIRM is provided in Appendix I.

2.3.9 Software Test Plan (STP)

The STP describes the types of tests and provides traceability to the software requirements they satisfy. The STP identifies the test locations, describes the test environment, and provides details concerning resources required for testing. It contains schedules for the planned tests. A sample outline for the STP is provided in Appendix J.

2.3.10 Software Test Description (STD)

The STD describes the test cases and acceptance criteria that will be used to test the software. It describes the test methods, tools, scenarios, and the pass/fail criteria for assessing the results of the testing. The STD shall provide all essential information relating to each test so that an independent test can duplicate the test results or verify the results obtained. A sample outline for the STD is provided in Appendix K.

2.3.11 Software Test Report (STR)

The STR provides a technical report with supporting documentation (package of materials) required to evaluate the results of the software tests described in the STD. The STR documents the results of all tests run against the software, identifies problems encountered during testing, and recommends solutions to those problems. It incorporates the test log as a record of the events for each test. A sample outline for the STR is provided in Appendix L.

2.3.12 Software Design Description (SDD)

The SDD provides a description of the design of a Computer Software Configuration Item (CSCI). It describes the CSCI-wide design decisions, the architectural design, and the detailed design needed to implement the software. A sample outline for the SDD is provided in Appendix M.

2.3.13 Interface Design Document (IDD)

The IDD provides a description of all interface characteristics of one or more systems, subsystems, hardware configuration items, computer software configuration items, manual operations, or other system components. An IDD may describe any number of interfaces. A sample outline for the IDD is provided in Appendix N.

2.3.14 Errata Sheet (ES)

The ES provides information about known software problems and work-arounds contained in version releases or maintenance releases. It contains a description of the problem, the corrective action needed, and the planned resolution to the problem, if known. These problems are above and beyond those covered in the SVD. They are generally found during testing, but are not serious enough to hold up the release. A sample outline for the ES is provided in Appendix O.

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3. DII COE Documentation Format Requirements

The purpose of this section is to establish a standardized document format for all DII COE developer documentation. Standardized DII COE documentation minimizes many of the problems end-users experience in opening, viewing, printing, and formatting document files. The documentation format requirements are provided as guidance to all DII COE document providers. A set of corresponding templates that incorporates the format described in this section is available from DII COE CM.

3.1 Document Format Requirements

These requirements describe the standard document format of DII COE developer documentation using MS Word for Windows 6.0. These requirements and guidelines intentionally use as many of the default settings as possible to reduce the level of effort required to format files. They provide flexibility while resulting in documents that have a common look and feel through the use of the corresponding MS Word 6.0 templates (refer to Section 3.2).

The following requirements apply to all DII COE documentation submitted to DII COE CM. Exceptions must be approved by the DII COE Chief Engineer and coordinated with CM. Where it does not conflict with the requirements specified in this document, it is recommended that the GPO *Style Manual* be used as the style guide reference.

3.1.1 Document Length

The basic format described in the following paragraphs addresses formatting documents for double-sided reproduction (including blank pages). Deviations from the standard to accommodate very small (12 pages or less) and very large (greater than 75 pages) documents are included in these requirements under the applicable format topics. Very small documents are formatted for single-sided reproduction. Directions are also included to accommodate a section numbering page scheme for very large documents where it is necessary to keep sections and/or appendices in separate files.

3.1.2 Page Format

1. The font for text not otherwise specified shall be Times New Roman, Regular, and 12 point.
2. Left justification shall be applied to all document text.
3. Indentation shall use the following settings as the default: 1" for left and right margins, 0.6" for the top margin, and 0.5” for the bottom margin.

3.1.3 Paragraph Format

Widow/Orphan control shall be applied to all documents.

3.1.4 Page Numbering Format and Pagination

1. Documents shall have a sequential page numbering scheme (1, 2, 3 etc.). However, large documents (greater than 75 pages) may be section numbered (example: **1-pg#**, **A-pg#**).
2. For large documents, pagination shall support double-sided reproduction, including any blank pages. Page numbers shall be centered. Sections shall begin on a new odd

page (face page) and use blank even pages (backup pages) where needed.

3. Blank pages (backup pages) shall be identified with the sentence, "**This page intentionally left blank."** . This sentence shall appear centered in the middle of the page. Refer to the blank page following the Preface for an example of a blank page format.
4. Page numbering for the TOC shall be lowercase Roman numerals and start on page "i". Page numbers for the body of the document shall use numbers and start on page "1".
5. Appendices shall be a continuation of the body of the document. However, where it is needed in large documents or large appendices (such as listings) a section numbering scheme, described above, may be applied.
6. When making cross-references within your document it is best to refer to a section number rather than a page number, which may not be a reliable location in a hardcopy of an electronic document file.
7. Documents that are 12 pages or less do not need to be formatted for double-sided reproduction. Section headings are not required to begin on a new odd page.

3.1.5 Title Page Format

A representative title page is included in the template(s) and in Appendix P. The title page shall identify the type of DII COE document (refer to Section 2.2.1), the name and version of the software/segment, the associated COE platform(s) (as applicable), a document version (as applicable), and a document date. The name of the developer and other contact information should not be included.

The title page is not paginated and shall be followed by a blank backup page. This blank page is also not paginated, has no headers or footers, and has no text indicating it is a blank page. The blank page is not required for small documents formatted for single-sided reproduction.

3.1.6 Format for Headings

The headings styles described below are defined in MS Word 6.0 templates, and should be used when creating DII COE documentation. Guidelines for using the standard document templates are described in section 3.2.

1. All documents shall be formatted using the heading styles provided in the DII COE document templates. Paragraph headings styles are named **Heading 1**, **Heading 2**, **Heading 3**, **Heading 4**, and **Heading 5,** etc.
2. Headings shall use a decimal numbering scheme (1.1.1). Numbered headings in text shall not be used.
3. Section headings (**Heading 1**) shall be Initial Capitals, 16 point bold, and left adjusted to the margin. This format applies to appendix headings also. The default **Heading 1** style from the template may be applied to the headings for appendices.
4. Second level headings (**Heading 2**) shall be Initial Capitals, 14 point bold, and left adjusted to the margin.
5. Third level, fourth level, and fifth level headings (**Heading 3 - Heading 5**) shall be Initial Capitals, 12 point bold, and left adjusted to the margin.

3.1.7 Header and Footer Format

1. The template contains a format for headers and footers which shall be tailored for each document. The text for headers and footers shall be Times New Roman, 12 point.
2. The footer shall identify the document date (required). Specification of "Draft", if applicable, is required, and "Final" is optional.
3. The header should include a document number (optional, but recommended). A document number provides accurate identification of documents on diskette. The document number shall be in the format described below, as applicable. Omit elements which do not apply.:

   N.X.Y.Z.A where

   N Name of the software

   X is the DII segment version to which your document applies

   Y indicates either Draft or Final (coincides with the footer if applicable)

   Z is the DII COE Platform your document applies to, such as HP1020 (for HP 10.20) or NT40 (for Windows NT 4.0)

   A identifies the type of document, such as SVD for Software Version Description. This may include any user suffix such as -1

   Example: *HP-UX.3003.Draft.HP1020.SVD*

3.1.8 Format for Figures, Tables, Notes, and Warnings

The text contained in figures, tables, notes and warnings shall be Times New Roman, Regular and 12 point.

1. Figures shall be anchored to the paragraph, and shall be centered between the margins. Figure boxes shall have a single line border. Figure titles shall be centered below the figure and outside the border.
2. Tables shall be centered between the margins, and shall have a single line table grid. Table boxes shall be set to full width (full justification) and the length determined by the content. Table titles shall be centered between the margins above the table.
3. **NOTE**, **WARNING,** and **CAUTION** shall be Times New Roman, Bold and 12 point, all capitals followed by a colon.

3.1.9 Figure and Table Titles and Numbering

The styles for figure and table captions have been edited for the document templates.

1. Figure and table titles shall be Times New Roman, Bold and 12 point, and include numbers. The titles shall have a period and two spaces after the number and before the title text (example: Figure 1. Your Title).
2. Figures and tables appearing in documents may be titled using the C*aption* function

from the Insert menu. A number in the caption will automatically be generated each time a figure or table is titled, and included when the TOC is generated. The styles for figure and table captions have been edited for the document templates.

3. In small documents (12 pages or less), a simple figure and table numbering scheme shall be used (examples: Figure 1, Table 1).
4. In large documents (documents with greater than 75 pages), figures and tables shall be numbered by section (example: Figure 1-1. Your Title).

3.1.10 List Items and Indentation

1. The default tab setting for MS Word 6.0 (every 0.5" relative to the margin) shall be used as the standard for the body text of all documents. Indentation of all list items in documents shall use increments of 0.5". This requirement does not apply to the TOC.
2. Bulleted and numbered list items shall be generated as follows. First level list items in text shall either be left adjusted to the margin or indented 0.5" from the left margin. Subordinate items shall be left indented in increments of 0.5" from the left margin.

3.1.11 Table of Contents Format

1. All documents shall have a TOC.
2. TOC section, paragraph, appendix, table, and figure numbers should be left adjusted to the margin, corresponding text should be indented to show the subordination of headings. Page numbers should be right adjusted to the margin with dot fill.
3. The "Table of Contents" title shall be Times New Roman, Bold, 16 point, and centered, but "List of Figures" and "List of Tables" will be Times New Roman, Bold, 14 point, and left adjusted to the margin. To generate the Table of Contents:
    a. From the Insert menu select *Index* and *Tables*
    b. Select the *Table of Contents* tab
    c. Highlight *Custom Style* in the formats window, and the preview window will show the headings used
    d. Click on "OK" to generate the Table of Contents

3.1.12 List of Tables Format

1. If the document contains tables, then a List of Tables shall follow the TOC.
2. The "List of Tables" title will be Times New Roman, Bold, 14 point, and left adjusted to the margin.
3. The List of Tables should be left adjusted to the margin. Page numbers should be right adjusted to the margin with dot fill. To generate the List of Tables:
    a. From the Insert menu select *Index* and *Tables*
    b. Select the *Table of Figures* tab
    c. Highlight *Table* in the Caption Label window
    d. Highlight *Custom Style* in the formats window, and the preview window will show the headings used
    e. Click on "OK" to generate the List of Tables

3.1.13 List of Figures Format

1. If the document contains figures, then a List of Figures shall follow the TOC.
2. The "List of Figures" title will be Times New Roman, Bold, 14 point, and left adjusted to the margin.

3. The List of Figures should be left adjusted to the margin. Page numbers should be right adjusted to the margin with dot fill. To generate the List of Figures:
    a. From the Insert menu select *Index* and *Tables*
    b. Select the *Table of Figures* tab
    c. Highlight *Figure* in the Caption Label window
    d. Highlight *Custom Style* in the formats window, and the preview window will show the headings used
    e. Click on "OK" to generate the List of Figures

3.1.14 Creating an Index

An index shall be included for documents greater than 12 pages. MS Word 6.0 has an indexing feature on the Insert menu that can be used to create an index. Keywords selected for the index should be related to topics a user would need, but not find in the TOC.

3.2 Guidelines for Using Standard Document Templates

The style and format settings for the document format described above are defined in the MS Word 6.0 templates. Templates have been created for each DII COE required software document. Both the document format and corresponding templates are intended to be maintained and tailored as a result of joint cooperation and input from all interested parties. Any comments, questions, or concerns should be forwarded to the DII COE Hotline. For contact information, see the Preface of this document. Instructions for applying and using the DII COE document templates are described below.

3.2.1 Applying the Template

A series of document templates is provided, one for each DII COE required software support document. Document developers may use these templates to create their DII COE software documentation. These document templates are pre-filled with the corresponding outlines that appear in Appendices B through O.

1. Copy the template files to the default MS Word 6.0 template directory. This directory varies depending on the user's computer and system configuration and the MS Word 6.0 installation.
2. Use a template to create a new document based on a DII COE template. From the File menu select *New* and select the DII COE template you wish to use. You now have a new, unnamed document with the format structure in place. The text you enter will follow the format and styles in the template.
3. Use a template to format an old document. If you have an existing document you wish to format, you may copy and paste the file into a new document created as described above.
4. Insert the correct document number into the header (refer to Section 3.1.7). This will allow document recipients to identify and correlate document hardcopy and electronic files.
5. Insert the correct document date into the footer (refer to Section 3.1.7).

Appendix A: List of Acronyms

API	Application Program Interface
APIRM	Application Program Interface Reference Manual
CDR	Critical Design Review
CM	Configuration Management
COE	Common Operating Environment
COTS	Commercial Off-the-Shelf
CSCI	Computer Software Configuration Item
DBDD	Database Design Document
DBMS	Database Management System
DCE	Distributed Computing Environment
DII	Defense Information Infrastructure
DISA	Defense Information Systems Agency
DOD	Department of Defense
ES	Errata Sheet
GIF	Graphics Interchange Format
GOTS	Government Off-the-Shelf
GPO	Government Printing Office
GUI	Graphical User Interface
HTML	Hypertext Markup Language
HWCI	Hardware Configuration Item
IDD	Interface Design Document
IP	Installation Procedures
ISBN	International Standard Book Number
JPEG	Joint Photographic Expert Group
MS	Microsoft
MIL-STD	Military Standard
OS	Operating System
OSF	Operational Support Facility
PM	Programmer's Manual
POC	Point of Contact
RAM	Random Access Memory

SAM	System Administrator's Manual
SDD	Software Design Description
SPS	Software Product Specification
SRN	Software Release Notice
STD	Software Test Description
STP	Software Test Plan
STR	Software Test Report
SVD	Software Version Description
TOC	Table of Contents
UM	User's Manual

Appendix B: Software Version Description (SVD) Sample Outline

This SVD outline contains the unique preparation instructions for the SVD. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diisvd.dot**, is available from DII COE CM.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software. It must provide the name(s), title(s), abbreviation(s), version number(s), and the release number(s). Identification must include:

1. **Segment Name:** Common name or Product name identification. Identify if this is a GOTS, COTS, freeware or shareware product.
2. **Version Number(s):** Provide product version number and COE version number, as applicable.
3. **Platform(s):** Specific hardware and operating system.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software. Include references to other sources of information. For example:

1. **Purpose:** Purpose of the software (i.e., what functionality and features are provided).
2. **Usage:** When and how to use the software.
3. **References:** Provide reference information regarding product details. List publications and other sources of technical support, training, and on-line support (e.g., Internet and Web Sites), when available. Provide sources for publications, point of contact (POC), agents or service/support centers, as applicable.

1.3 Product Information

Provide the following information:

1. **Product Qualification:** Provide product qualification and date the qualification was issued. State the type of acceptance, including testing, certification, conformance assessment or interoperability applicable to the product type.
2. **Product Restrictions:** Identify any licenses, requirements, or imposed constraints. List all applicable licensing, patent, trademark and/or copyright restrictions for the

described segment. Also provide restrictions for shareware and freeware products, when applicable.

3. **Product Dependencies:** Identify all dependencies for the product segment. Provide implementation constraints and limitations on system configuration or other information required for the implementation and operation of the software or system.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Version Description

3.1 Inventory of Materials Released

List all physical media (i.e., tapes, diskettes, CDs, listings, and all documentation) that make up the software version. Provide for each list item identifying numbers, titles, abbreviations, dates, version numbers, release numbers, and other information, as applicable. Include applicable security, privacy, trademark and licensing considerations for these items, in addition to safeguards for handling the media.

3.2 Pertinent Documentation

All documentation pertinent to the software/segment, but not listed as part of the delivery, should be identified.

3.3 Inventory of Software Contents

Identify names and numbers, titles, abbreviations, dates, version numbers and release numbers, as applicable, all computer libraries and files that make up the software. Include any security and privacy concerns.

3.4 Changes Installed

This section does not apply to initial software releases. Provide a list of all version changes, enhancements, and fixes incorporated into the software since the previous version. Changes must be grouped and separated by change classes (Class I/Class II), if applicable. Identify all known anomalies, problem reports, change proposals, and change notices associated with each change or fix. Identify the effects, if any, of each change on system operations and on interfaces with other hardware and software.

3.5 Waivers

Provide information regarding waivers associated with this system software. List all approved waivers including documentation waivers. For COTS products also include waivers associated with product licensing and/or product distribution and use.

3.6 Adaptation Data

Identify or reference all unique-to-site data contained in the software version. For software versions after the first, describe changes made to the adaptation data.

3.7 Installation Instructions

Provide a reference to the Installation Procedures (IP) document which contains the applicable instructions. Identify the document number, title, version/revision, and date, as applicable. Identify the random access memory (RAM) and hard disk space required by the software segment.

3.8 Possible Problems and Known Errors

Identify (list) any possible problems and all known errors with the software at the time of the release. Include any actions being taken to resolve the problems or errors. Provide instructions for recognizing, avoiding, correcting or handling (work-around) each problem or error.

4. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

5. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

Phone: 703-735-8681
Fax.: 703-735-3080
Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional or more detailed information. All appendices shall be referenced in the main body of the document.

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Appendix C: Installation Procedures (IP) Sample Outline

This IP outline contains the unique preparation instructions for the IP. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diiip.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software. It must provide the name(s), title(s), abbreviation(s), version number(s), and the release number(s). Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system/software.

Provide references to additional information sources. Include documentation that may assist the user when problems are encountered. Identify each document by document number, title, version/revision, date, and source. Provide a point of contact to be used for reporting problems. Include facilities or organizations equipped to help in the event problems are encountered during installation. Identify organizations with mailing address, telephone number, fax number, and Web page or Internet address, as available.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. System Environment

Describe the system environment necessary to perform the installation of the software in this section. Include system and software configuration information, identify dependencies and compatibility issues, and provide any procedures that must be performed prior to installing the software.

3.1 System Requirements

3.1.1 Hardware Requirements

Identify all system hardware resources required to perform the software installation by name, number, type, size, etc. Provide the RAM and hard disk space required by the software/segment. Provide other requirements for computers, memory, drives, and other devices or components, as applicable.

3.1.2 Operating System Requirements

Identify the operating system and related components required to perform the software installation by names, version numbers, and release numbers, as applicable.

3.1.3 Kernel Requirements

Identify the DII COE Kernel version required to perform the software installation by name, version number, and release number, as applicable.

3.2 System and Site Preparations

Describe the system and site preparations that need to be performed prior to installing the software. Provide procedures for setting up the hardware and software, as needed. Identify hardware/software dependencies and exceptions to configuration, as applicable.

3.2.1 System Configuration

List any software or hardware components that must be installed and configured prior to the installation of the software (e.g., telecom, Distributed Computing Environment (DCE), etc.). This section may cover requirements for upgrading specific system software with version dependencies.

3.2.2 Operating System Preparation

Provide procedures or information, if any, needed to prepare the operating system. Provide specific system requirements prior to installation (e.g., security, system privileges).

3.2.3 Tape/Disk Preparation

Provide procedures or information needed to prepare the tape or disk drive and related media, as applicable. Identify the physical media containing the software. Describe the disk partitioning and library set-ups that may be required.

4. Installation Instructions

Provide the step by step procedure and instructions for installing, configuring, and initializing the system software or segment into the appropriate libraries using the COE approved guideline for segment installation and verification.

4.1 Media Booting Procedure

Provide instruction for booting the media containing the software, as needed, with specific options when required for the installation.

4.2 Installation Procedures

Provide the step by step procedures for configuring and installing the software. Provide instructions on how to load or download the software or segment into specific libraries using the DII COE approved guidelines for segment installation and verification.

4.3 Installation of Upgrades

Provide the step by step procedures and instructions for upgrading already installed software with new versions or patches. Identify the loading or downloading sequence and options for the software or segment installation.

4.4 Installation Verification

Describe procedures or a method (such as a checklist) for determining if the software installation was successful. This section may also describe and provide instructions for any software verification routines or programs provided, if any.

4.5 Initializing the Software

Describe the steps to be performed at the completion of the software installation. Include the procedures required for the initialization of system and software program operations.

4.6 List of Changes and Enhancements

Provide a brief description of the changes, enhancements, and fixes (patches) incorporated into this version of the software. Reference the applicable SVD for a detailed list of the software changes.

4.7 Important Considerations

Provide any security, licensing, privacy, and/or safety precautions and instruction relevant to the software being installed. This section may also provide critical back-up and archiving instruction.

5. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

6. Documentation Improvement and Feedback

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A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix D: Software Product Specification (SPS) Sample Outline

This SPS outline contains the unique preparation instructions for the SPS. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diisps.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and software. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and functionality provided by the software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Requirements

Specify the contents of the delivered software. Describe all materials that comprise the subject software delivery by enclosure or reference to the electronic media.

3.1 Executable Software

Identify the executable software provided in the referenced or enclosed electronic media. Specify all executable files and any batch files, command files, data files, or other software files needed to install and operate the subject software on the target computer platform(s).

3.2 Source Files

Identify the source files for the software provided in the referenced or enclosed electronic media. Specify all source files including any batch files, command files, data files, or other software files needed to regenerate the executable software.

3.3 Packaging Requirements

Specify the requirements, if any, for packaging and making copies of the subject software.

4. Qualification Provisions

Identify the method(s) to be used to demonstrate that a reproduction of the subject software is a valid copy.

5. Software Support Information

5.1 As-Built Software Design

Provide or reference the appendix or other document(s) that contain the as-built software design. The information shall be the same as that required in a Software Design Description (SDD), Interface Design Document (IDD), and Database Design Document (DBDD), as applicable, and described in MIL-STD 498. Information provided in the source code listings may be referenced.

5.2 Compilation/Build Procedures

Describe or reference an appendix that describes the procedures to be used to create the executable files from the source files and to prepare the executable files for loading onto firmware or other distribution media. Specify the compiler(s)/assembler(s) to be used, including version numbers; other hardware and software needed, including version numbers; any settings, options, or conventions to be used; and procedures for compiling/assembling, linking, and building the subject software and associated system/subsystem, including variations for different sites, configurations, version, etc. Reference other documents that contain the required information, as needed.

5.3 Modification Procedures

Describe procedures that must be followed to modify the subject software. Include or reference information on the following, as applicable:

1. Support facilities, equipment, software, and procedures for their use
2. Database/data files used by the subject software and procedures for using and modifying them
3. Design, coding, and other conventions to be followed

4. Compilation/build procedures if different from those above
5. Integration and testing procedures to be followed

5.4 Computer Hardware Resource Allocation

Describe the subject software's measured utilization of computer resources (such as processor capacity, memory capacity, communications/network equipment capacity, etc.). Include all computer hardware resources utilized by the software and system-level resources affecting the software, or in the software development plan. For each computer hardware resource provide or reference the following information, as applicable:

1. Traceability to the software requirements or system-level resource allocations being satisfied (here or in Section 6)
2. Assumptions and conditions on which the utilization data are based (such as typical or worst-case)
3. Any special considerations affecting the utilization (such as impacts of OS or implementation)
4. Units of measure used (such as percentages, cycles per second, bytes)
5. Software level(s) at which the estimates or measures have been made (such as software unit or executable program)

6. Requirements Traceability

Provide traceability from each software source file to the software unit it implements. Provide traceability from each software unit to the source files that implement it. Provide traceability from each software unit to the system or software requirements it addresses. Provide traceability from each system or software requirement to the software unit that addresses it.

7. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

8. Documentation Improvement and Feedback

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A. Appendices

Appendices may be used to provide additional information published separately for convenience in

document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix E: Database Design Document (DBDD) Sample Outline

This DBDD outline contains the unique preparation instructions for the DBDD. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diidbdd.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the database to which this document applies. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 Database Overview

Briefly state the general nature and purpose of the database. Except for the initial release of this document, provide a summary of enhancements or improvements associated with the database covered by this document. Provide references to any relevant documentation.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Database Behavioral Design

Describe the database's behavioral design. That is, how it will behave from a user's point of view in meeting its requirements (ignoring internal implementation). Identify design decisions that depend upon system states or modes. If the Software Product Specification (SPS) contains this information, information may be referenced. If some or all of the design decisions are described in custom or commercial documentation, information may be referenced (by document title, number, version/revision, and date) rather than repeated. Present or reference any conventions needed to understand the design.

For example, describe:

1. Design decisions regarding queries, displays, reports, messages, and how data files will appear to the user
2. Database behavior in response to each input or query
3. Performance characteristics
4. Selected equations/algorithms/rules and handling of disallowed inputs

4. Database Design Details

Provide the detailed design of the database in this section. The number of levels of design and the names of those levels are based on the design methodology used (such as conceptual, internal, logical, physical, etc.). Indicate any dependency on system states or modes. Include or reference any design conventions needed.

4.1 <Name of Database Design Level>

Identify the database design level and describe the data elements and data element assemblies of the database in the terminology of the selected design method. Include the following:

1. Characteristics of individual data elements, such as:

    a. Names/identifiers
    b. Data type
    c. Size and format
    d. Units of measurement
    e. Range of values
    f. Number of significant digits and accuracy
    g. Constraints and business rules
    h. Sources and recipients

2. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.), Such as:

    a. Names/identifiers
    b. Data elements and their structure
    c. Medium and structure of data elements/assemblies on the medium
    d. Characteristics of displays and other outputs
    e. Relationship among assemblies
    f. Constraints and business rules
    g. Sources and recipients

5. Database Software Units

(Detailed Design of Software Units Used for Database Access or Manipulation)

Describe in the following paragraphs each software unit used for database access or manipulation, including database applications, database tools, and scripts. If all or part of this information is provided elsewhere (e.g., a user manual for a commercial DBMS), information may be referenced rather than repeated. If any of the design depends upon system states or modes, indicate dependency. Reference any design information needed from prior paragraphs. Present or reference any design conventions needed to understand the design.

5.1 <Name of Software Unit>

Identify and describe the software unit. Include the following, as applicable:

1. Design features
2. Constraints and limitations
3. Programming language
4. List of procedural commands (such as, defining forms and reports, DBMS queries, input to GUI builder for automated code generation, commands to the operating system, or shell scripts) and a reference to documents that explain them
5. Description of data the software receives or outputs, described separately from data local to the software, and other data elements and data assemblies, as applicable, including:

    a. Identification of the interface and interfacing entity(ies)
    b. Type of interface
    c. Characteristics of data elements/data assemblies associated with the interfacing entity(ies)
    d. Characteristics of communication methods and protocols
    e. Physical characteristics of interface

6. Logic to be used by the software, such as:

    a. Conditions for initialization of software
    b. Conditions for passing control to another software unit
    c. Response and response time(s)
    d. Sequence operation and sequence control
    e. Exception and error handling

6. Requirements Traceability

Provide traceability from each database or software unit to the system or software requirements it addresses. Provide traceability for each system or software requirement to the database or software unit that addresses it.

7. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

8. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix F: System Administrator's Manual (SAM) Sample Outline

This SAM outline contains the unique preparation instructions for the SAM. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diisam.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and software. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Operating Guidelines

Provide a list of documents available to support the system or software, including commercial guides and manuals. List each document by document number, title, version/revision, and date. Provide or reference any additional information that would assist in the implementation, installation, and operation of the system or software, as applicable.

Specify the procedures necessary to power-off, power-on, and initialize operation of the computer system, as applicable.

4. Installation Overview

Reference the documentation (such as the IP) that contains the procedures for installing, configuring, and initializing the system or software.

5. System Administration Utilities

Describe the system administration utilities or related functionality provided by the system/software. If the software directly or indirectly affects a system administration function (e.g., processes data, status, commands or displays, etc.), describe the impact to system administration functions, if any.

6. Operation/Maintenance Procedures

Provide instructions for system and/or software operation and maintenance. These may include monitoring procedures, on-line procedures, off-line procedures, and any additional procedures to be followed by the administrator.

7. Error Recovery Guidelines

Describe any information pertinent to troubleshooting problems associated with the system/software. For example, error messages generated by the software and the appropriate responses, known problems or errors, any internal diagnostics provided by the software, etc.

8. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

9. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix G: User's Manual (UM) Sample Outline

This UM outline contains the unique preparation instructions for the UM. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diium.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and software. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Software Summary

3.1 Software Description

Provide a brief description of the intended uses of the software. Describe capabilities, operating improvements and benefits expected from its use.

3.2 Software Inventory

Identify all software files, including databases and data files, that must be installed for the software to operate. Include security and privacy considerations for each file. Identify software necessary to continue or resume operation in case of an emergency.

3.3 Software Environment

Identify all the hardware, software, equipment, manuals and other resources needed to install and operate the software.

3.4 Software Organization and Operation Overview

Provide a brief description of the organization and operation of the software from the operator's point of view. Include, as applicable:

1. Operation and purpose for each logical component of the software
2. Expected performance characteristics, such as:

    a. Types, volumes, rate of inputs accepted
    b. Types, volume, accuracy, rate of outputs produced
    c. Typical response time, processing time, and factors that affect each
    d. Limitations
    e. Expected error rate
    f. Expected reliability

3. Relationship of the functions performed to interfacing entities
4. Supervisory or security controls (such as passwords) that can be implemented to manage the software

3.5 Modes of Operation

Explain the differences in what the user will be able to do with the software at times of emergency and in various states and modes of operation, if applicable.

3.6 Security and Privacy

Provide an overview of security and privacy considerations associated with the software. Include a warning regarding the making of unauthorized copies of software or documents.

3.7 Assistance and Problem Reporting

Provide the points of contact and procedures to be followed to obtain assistance and report problems.

4. Access to the Software

Provide step-by step procedures, oriented to the first time/occasional user, so that the user can reliably access the software. Include safety precautions, marked by WARNING or CAUTION.

4.1 Software Setup

Describe procedures users must perform to install, deinstall, configure, and access the software on the equipment in this section.

4.1.1 Familiarization

Provide the following for first time users, or include references to the documentation that contains:

1. Procedures for powering on, powering off, and adjusting needed equipment
2. Characteristics of the display screen(s)
3. How to identify and use the cursor
4. Keyboard layout and use

4.1.2 Access Control

Provide an overview of user security features, including:

1. How and from whom to obtain a password
2. How to add, delete, or change passwords under user control
3. Security and privacy concerns pertaining to the marking and storage of media a user may generate

4.1.3 Installation and Configuration

Reference the IP document that contains the procedures a user must perform to install and configure the software. Include or reference any additional information needed by users.

4.2 Initiating a Session

Provide step-by-step procedures for beginning work, including any options available. Include a problem determination checklist in case difficulties are encountered.

4.3 Stopping and Suspending Work

Describe how the user can cease or interrupt use of the software and how to determine whether normal termination or cessation has occurred.

5. <Name of Software> Processing Guide

This section (or sections, as needed) shall describe the functionality provided by and specify procedures for using the software. The document organization will depend on the characteristics of the software being documented. For example, Section 5 may be a guide to menus and Section

6 a guide to functions. Whatever the method of organization, the format for presenting information must have a consistent style.

5.1 Capabilities

Briefly describe the interrelationships of the transactions, menus, functions, or other processes in order to provide an overview of the use of the software.

5.2 Conventions

Describe conventions used by the software, such as display colors, audible alarms, abbreviations, and naming conventions.

5.3 Processing Procedures

This paragraph shall explain the organization of subsequent paragraphs (e.g., by function, by menu, by screen). Describe the order in which the process must be performed by the user, if applicable.

5.3.1 <Name of Process>

Identify the function, menu, transaction, or other process being described. Give options and examples, as applicable, of menus, icons, data entry forms, user inputs and outputs, alarms and messages, diagnostics, on-line help or tutorial capabilities, and any other conditions that may affect the software's interface with the user.

5.4 Related Processing

Identify and describe any related batch, off-line, or background processing performed by the software that is not invoked directly by the user and is not described in paragraph 5.3. Specify any user responsibilities to support this processing.

5.5 Data Backup

Provide procedures for creating and retaining backup data.

5.6 Error Recovery

This paragraph details procedures for restart or recovery from errors or malfunctions occurring during processing and for ensuring continuity of operations during emergencies.

5.7 Messages

List, or refer to an appendix that contains, all error messages, diagnostic messages and information messages that can occur. Identify and describe the meaning of each message and the action that should be taken.

6. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

7. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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A. Appendices

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Appendix H: Programmer's Manual (PM) Sample Outline

This PM outline contains the unique preparation instructions for the PM. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diipm.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and software. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Segment Overview

Provide an overview of the segment (application) development environment. Include descriptions of application development concepts, concerns, and procedures. Describe other attributes related to the subject software or COE environment a developer may need to know. Provide references to other sources of software/segment information, such as the Software Version Description, API Reference Manual, and any available program/programming related commercial documentation.

4. Segment Development

Provide details as needed to assist application developers in:

1. Designing Applications
2. Building Applications
3. Running Applications

5. Customizing Segments

Provide information, as applicable, to assist developers in customizing applications. Include procedures for adding menu items and icons, displaying messages, reserving sockets, etc.

Alternately, this information may be provided in Section 4 (Segment Development). This and subsequent section(s) may be used to provide additional information, as required.

6. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

7. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

Phone: 703-735-8681
Fax.: 703-735-3080
Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix I: Application Program Interface (API) Reference Manual (APIRM) Sample Outline

This APIRM outline contains the unique preparation instructions for the APIRM. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diiapirm.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and software. It must provide the identifying number(s), title(s), abbreviation(s), version number(s), the release number(s), and the associated COE version number(s), as applicable. Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. API Overview

Provide an overview of the public or COE approved APIs included in the subject software/segment. List the APIs covered in this document and include a brief description of the general functionality performed, as applicable. Provide references to additional sources of information about the APIs described in this document.

4. <Name of API> General Function

This and subsequent sections may be organized by functionality or as required to present the API details. For example, section 4 may be printer APIs and section 5 may be message processing APIs. Provide subsections as needed to describe each API in detail.

4.1 <Name of API>

Describe each API and include details concerning when and how a programmer may use the subject API. Details may be organized in any consistent manner best suited to presenting the information. Provide the following details for each API, as applicable:

1. Function Name - brief description of the function
2. Synopsis - calling syntax, including arguments and the return type
3. Parameters - describe each parameter used by the function
4. Description - describe what the function does, including events and impacts
5. Returns - describe what the function returns
6. Notes - additional information about the function
7. Example - how to use the function

5. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

6. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix J: Software Test Plan (STP) Sample Outline

This STP outline contains the unique preparation instructions for the STP. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diistp.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software. It must provide the name(s), title(s), abbreviation(s), version number(s), and the release number(s). Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Software Test Environment

Identify and describe the software test environment and test(s) to be performed at each intended test site. For each test site, provide the following information:

3.1 <Name of the Test Site>

Describe the items listed below necessary to perform the planned testing activities at the site. Provide the purpose and use of each item. Identify by name, number, and version, as applicable, all software and hardware items. Identify those items expected to be supplied by the site and any classification, security, privacy, or licensing issues associated with each applicable item, including:

1. Software Items. Software items needed to perform the testing (e.g., operating systems, processors, compilers, other applications, databases, data files, test software, etc.).

2. Hardware and Firmware Items. Hardware and firmware items needed to perform the testing (e.g., computer equipment, interfacing equipment, test equipment, etc.).
3. Other Materials. Other materials needed to perform the testing (such as manuals and listings).
4. Installation, Testing and Control. Plans for the installation, testing and control of each element of the test environment.
5. Participating Organizations. Identify the organizations that will participate and their roles and responsibilities.
6. Personnel. Identify the number, type, and skill level of personnel needed to perform the testing.
7. Orientation and Training. Describe any planned orientation or training to be given.
8. Tests to be Performed. Identify, by referencing Section 4, each test to be performed at the site.

4. Test Identification

Identify and describe each test to which the STP applies.

4.1 General Information

Present information applicable to the overall testing to be performed. Provide the following information:

1. General Test Conditions. Describe conditions that apply to all or a group of tests. State the extent of testing and the rationale for the extent selected. Provide the approach for retesting or regression testing.
2. Test Progression. Explain the planned sequence or progression of tests, if applicable.
3. Data Recording, Reduction, and Analysis. Identify and describe the data recording, reduction, and analysis procedures to be used for the tests identified in this STP.

4.2 Planned Tests for <Item to be Tested>

Identify the system, subsystem, software or other item (by name, title, version number, release number) and describe the testing planned for the item in the following paragraphs.

4.2.1 <Name of Test>

Identify the test and provide the following information:

1. Test objectives.
2. Test level at which testing will be performed (such as system level or configured item level).
3. Test type or class of test to be performed.
4. Qualification Method(s) as specified in the requirements specification.
5. Special requirements, if any (such as extended facility support hours).

6. Type of data to be recorded.
7. Type of data recording/reduction/analysis to be employed.
8. Assumptions and constraints, such as anticipated limitations on the test due to system or test conditions.
9. Safety, security, and privacy concerns associated with the test.

5. Test Schedules

Provide or reference the schedules for conducting the tests identified in this plan. Provide:

1. A listing or chart depicting all the sites with time frames for conducting the testing
2. A schedule for each site which includes test preparation, test execution, test data collection and preparation, and the preparation, review, and approval of the Software Test Report (STR)

6. Requirements Traceability

Provide traceability from each test to the system or software requirements it addresses. Provide traceability for each system or software requirement to the test that addresses it.

7. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

8. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

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Appendix K: Software Test Description (STD) Sample Outline

This STD outline contains the unique preparation instructions for the STD. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diistd.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software. It must provide the name(s), title(s), abbreviation(s), version number(s), and the release number(s). Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Test Preparation

Provide the information identified in the following paragraphs. Include any safety precautions, identified by a WARNING or CAUTION, and security or privacy concerns.

3.1 <Name of Test> Preparation

Identify a test and provide the following information.

3.1.1 Hardware Preparation

Describe the procedures necessary to prepare the hardware for the test. May reference published operating manuals or other documentation for these procedures. Provide, as applicable:

1. Specific hardware identification
2. Any switch settings and cabling required to connect the hardware
3. Diagram(s) to show hardware, interconnections, control and data paths
4. Step-by-step instructions for placing the hardware in a state of readiness

3.1.2 Software Preparation

Describe the procedures necessary to prepare the item(s) under test and any related software, including data, for the test. May reference published software manuals for these procedures. Provide, as applicable:

1. Identification of specific software to be used in the test
2. Storage medium of the item(s) under test
3. Storage medium of any related software
4. Instructions for loading the software
5. Instructions for software initialization to more than one test case

3.1.3 Other Preparations

Describe any other required actions, preparations, or procedures.

4. Test Descriptions

Provide the information identified in the following paragraphs. Include any safety precautions, identified by a WARNING or CAUTION, and any security or privacy concerns.

4.1 <Name of Test> Description

Identify the test and provide the following information for each test case. Where information required duplicates information previously provided, that information may be referenced rather than repeated.

4.1.1 <Name of Test Case>

Identify the test case, state its purpose, and provide a brief description. Provide details in the following paragraphs.

4.1.1.1 Prerequisite Conditions

Identify conditions that must be established prior to performing the test case, such as:

1. Hardware and software configurations
2. Initial conditions for hardware
3. Control parameters, flags, breakpoints, or initial data settings
4. Other environmental conditions

4.1.1.2 Test Inputs

Describe the test inputs necessary for the test case, such as:

1. Name, purpose, and description of each test input
2. Whether the test input is real or simulated
3. Source for and method of selecting the test input
4. Time or event sequence of the test input
5. Manner in which the test input will be controlled

4.1.1.3 Expected Test Results

Identify all expected test results for the test case.

4.1.1.4 Criteria for Evaluating Results

Identify the criteria to be used for evaluating results of the test case. Provide the following or similar types of information:

1. Acceptable input and output conditions
2. Acceptable output range or accuracy
3. Allowable errors and severity of errors allowed
4. Minimum/maximum allowable test duration (in time or events)
5. Maximum number of interrupts, halts, or other system breaks
6. Conditions for interpreting outputs
7. Conditions for re-testing
8. Allowable indications of the control, status, and results

4.1.1.5 Test Procedure

Define the test procedure in numbered steps listed sequentially in the order in which they are to be performed. For convenience, test procedures may be included as an appendix and referenced in this paragraph. Provide the following for each test procedure, as applicable:

1. Test operator action and equipment operation required
2. Expected results and evaluation criteria
3. Actions to follow in the event of a program stop or other error
4. Procedures to be used to collect, reduce, and analyze test results

4.1.1.6 Assumptions and Constraints

Identify any assumptions made and constraints or limitations imposed due to system or test conditions.

5. Requirements Traceability

Provide traceability from each test case to the system or software requirements it addresses. Provide traceability for each system or software requirement to the test case that addresses it.

6. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

7. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

Phone: 703-735-8681
Fax.: 703-735-3080
Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

Appendix L: Software Test Report (STR) Sample Outline

This STR outline contains the unique preparation instructions for the STR. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diistr.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software. It must provide the name(s), title(s), abbreviation(s), version number(s), and the release number(s). Identification must include the operating system platform(s) to which this document applies.

1.2 System Overview

This paragraph shall provide a brief description of the general nature, purpose, and function of the system and software.

2. Referenced Documents

Provide a list of documents referenced in this document. List each document by document number, title, version/revision, and date. Identify the source for all documents not available through the Government.

3. Overview of Test Results

3.1 Assessment of Software Tested

Provide an overall assessment as demonstrated by the test results. Identify any remaining deficiencies, limitations, or constraints and include all associated problem reports and change requests. For each deficiency, limitation, or constraint, describe:

1. The impact to software and system performance, including identification of requirements not met
2. Recommended solution/approach for correcting it
3. The impact to software and system design to correct it

3.2 Impact of Test Environment

Assess the ways in which the test environment may differ from the operational environment and the effect of this difference on the test results.

3.3 Recommended Improvements

Provide a recommendation for improvements in the design, operation, or testing of the software.

4. Test Results

Describe the detailed results for each test in the following paragraphs.

4.1 <Name of Test>

Identify a test and describe the test results in the following paragraphs.

4.1.1 Summary of Test Results

Summarize the results of the test. Provide the status of each associated test case (possibly in table format), for example Passed, Failed, Retest Required. Reference the following paragraphs for information regarding problems encountered in testing (i.e., all results that are not a Pass, results as expected).

4.1.2 Problems Encountered

The following paragraphs identify each test case in which one or more problems occurred.

4.1.2.1 <Name of Test Case>

Provide:

1. A brief description of the problem(s)
2. Reference to the associated problem report(s) and/or change request(s)
3. Identification of the test procedure step(s) where the problem(s) occurred
4. Efforts made to correct the problem(s), including:

    a. Test procedure or steps repeated in retesting
    b. The number of times the test procedure(s) or step(s) were repeated and the results

4.1.3 Test Deviations

The following paragraphs identify each test case in which one or more deviations occurred.

4.1.3.1 <Name of Test Case>

Provide:

1. A brief description of the deviation(s)
2. Rationale for the deviation(s)
3. Assessment of the impact of the deviation(s) on the validity of the test

5. Test Log

Provide a chronological record of the test events covered by this report. This section may be included as an appendix and referenced in this paragraph. The test log shall include:

1. Date(s), time(s), and location(s) of the test performed
2. Hardware and software identification and configurations used in each test
3. Date and time of each test-related activity, including the identity of individuals performing the test and the identity of witnesses, as applicable

6. Notes

Provide general information to assist in the understanding of this document. This section may include a list of acronyms and abbreviations, and a list of terms and definitions.

7. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

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Fax.: 703-735-3080
Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used to provide additional information published separately for convenience in document maintenance. The appendices shall be referenced in the main body of the document, where applicable.

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Appendix M: Software Design Description (SDD) Sample Outline

This SDD outline contains the unique preparation instructions for the SDD. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diisdd.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system and the software to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System Overview

This paragraph shall briefly state the purpose of the system and the software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document Overview

This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced Documents

This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. CSCI-wide Design Decisions

This section shall be divided into paragraphs as needed to present CSCI-wide design decisions, that is, decisions about the CSCI's behavioral design (how it will behave, from a user's point of view, in meeting its requirements, ignoring internal implementation) and other decisions affecting the selection and design of the software units that make up the CSCI. If all such decisions are explicit in the CSCI requirements or are deferred to the design of the CSCI's software units, this

section shall so state. Design decisions that respond to requirements designated critical, such as those for safety, security, or privacy, shall be placed in separate subparagraphs. If a design decision depends upon system states or modes, this dependency shall be indicated. Design conventions needed to understand the design shall be presented or referenced. Examples of CSCI-wide design decisions are the following:

1. Design decisions regarding inputs the CSCI will accept and outputs it will produce, including interfaces with other systems, Hardware Configuration Items (HWCIs) , CSCIs, and users (section 4.3 identifies topics to be considered in this description). If part or all of this information is given in Interface Design Documents (IDDs), they may be referenced.
2. Design decisions on CSCI behavior in response to each input or condition, including actions the CSCI will perform, response times and other performance characteristics, description of physical systems modeled, selected equations/algorithms/rules, and handling of disallowed inputs or conditions.
3. Design decisions on how databases/data files will appear to the user (section 4.3 identifies topics to be considered in this description). If part or all of this information is given in Database Design Documents (DBDDs), they may be referenced.
4. Selected approach to meeting safety, security, and privacy requirements.
5. Other CSCI-wide design decisions made in response to requirements, such as selected approach to providing required flexibility, availability, and maintainability.

4. CSCI Architectural Design

This section shall be divided into the following paragraphs to describe the CSCI architectural design. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced.

4.1 CSCI Components

This paragraph shall:

1. Identify the software units that make up the CSCI. Each software unit shall be assigned a project-unique identifier.
2. Show the status (such as "consists of") relationship(s) of the software units. Multiple relationships may be presented, depending on the selected software design methodology (for example, in an object-oriented design, this paragraph may present the class and object structures as well as the module and process architectures of the CSCI).
3. State the purpose of each software unit and identify the CSCI requirements and CSCI-wide design decisions allocated to it. (Alternatively, the allocation of requirements may be provided in section 5.1.)
4. Identify each software unit’s development status/type (such as new development, existing design or software to be reused as is, existing design or software to be

reengineered, software to be developed for reuse, software planned for Build N, etc.) For existing design or software, the description shall provide identifying information, such as name, version, documentation references, library, etc.

5. Describe the CSCI's (and as applicable, each software unit's) planned utilization of computer hardware resources (such as processor capacity, memory capacity, input/output device capacity, auxiliary storage capacity, and communications/network equipment capacity). The description shall cover all computer hardware resources included in resource utilization requirements for the CSCI, in system-level resource allocations affecting the CSCI, and in resource utilization measurement planning in the Software Development Plan (SDP). If all utilization data for a given computer hardware resource are presented in a single location, such as in one SDD, this paragraph may reference that source. Included for each computer hardware resource shall be:

    a. The CSCI requirements or system-level resource allocations being satisfied
    b. The assumptions and conditions on which the utilization data are based (for example, typical usage, worst-case usage, assumption of certain events)
    c. Any special considerations affecting the utilization (such as use of virtual memory, overlays, or multiprocessors or the impacts of operating system overhead, library software, or other implementation overhead)
    d. The units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second)
    e. The level(s) at which the estimates or measures will be made (such as software unit, CSCI, or executable program)

6. Identify the program library in which the software that implements each software unit is to be placed

4.2 Concept of Execution

This paragraph shall describe the concept of execution among the software units. It shall include diagrams and descriptions showing the dynamic relationship of the software units, that is, how they will interact during CSCI operation, including, as applicable, flow of execution control, data flow, dynamically controlled sequencing, state transition diagrams, timing diagrams, priorities among units, handling of interrupts, timing/sequencing relationships, exception handling, concurrent execution, dynamic allocation/deallocation, dynamic creation/deletion of objects, processes, tasks, and other aspects of dynamic behavior.

4.3 Interface Design

This paragraph shall be divided into the following subparagraphs to describe the interface characteristics of the software units. It shall include both interfaces among the software units and their interfaces with external entities such as systems, configuration items, and users. If part or all of this information is contained in Interface Design Documents (IDDs), in section 5 of the SDD, or elsewhere, these sources may be referenced.

4.3.1 Interface Identification and Diagrams

This paragraph shall state the project-unique identifier assigned to each interface and shall identify the interfacing entities (software units, systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

4.3.2 <Project-unique Identifier of Interface>

This paragraph (beginning with 4.3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this SDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will ..." This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

1. Priority assigned to the interface by the interfacing entity(ies)
2. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented
3. Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

    a. Names/identifiers

        1. Project-unique identifier
        2. Non-technical (natural-language) name
        3. DOD standard data element name
        4. Technical name (e.g., variable or field name in code or database)
        5. Abbreviation or synonymous names

    b. Data type (alphanumeric, integer, etc.)
    c. Size and format (such as length and punctuation of a character string)
    d. Units of measurement (such as meters, dollars, nanoseconds)
    e. Range or enumeration of possible values (such as 0-99)
    f. Accuracy (how correct) and precision (number of significant digits)
    g. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply

h. Security and privacy constraints
i. Sources (setting/sending entities) and recipients (using/receiving entities)

4. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

    a. Names/identifiers

        1. Project-unique identifier
        2. Non-technical (natural language) name
        3. Technical name (e.g., record or data structure name in code or database)
        4. Abbreviations or synonymous names

    b. Data elements in the assembly and their structure (number, order, grouping)
    c. Medium (such as disk) and structure of data elements/assemblies on the medium
    d. Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)
    e. Relationships among assemblies, such as sorting/access characteristics
    f. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply
    g. Security and privacy constraints
    h. Sources (setting/sending entities) and recipients (using/receiving entities)

5. Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

    a. Project-unique identifier(s)
    b. Communication links/bands/frequencies/media and their characteristics
    c. Message formatting
    d. Flow control (such as sequence numbering and buffer allocation)
    e. Data transfer rate, whether periodic/aperiodic, and interval between transfers
    f. Routing, addressing, and naming conventions
    g. Transmission services, including priority and grade
    h. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

6. Characteristics of protocols the interfacing entity(ies) will use for the interface, such as:

    a. Project-unique identifier(s)
    b. Priority/layer of the protocol
    c. Packeting, including fragmentation and reassembly, routing, and addressing
    d. Legality checks, error control, and recovery procedures

e. Synchronization, including connection establishment, maintenance, termination
f. Status, identification, and any other reporting features

7. Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

5. CSCI Detailed Design

This section shall be divided into the following paragraphs to describe each software unit of the CSCI. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. Design conventions needed to understand the design shall be presented or referenced. Interface characteristics of software units may be described here, in Section 4, or in Interface Design Documents (IDDs). Software units that are databases, or that are used to access or manipulate databases, may be described here or in Database Design Documents (DBDDs).

5.1 <Project-unique Identifier of a Software Unit or Designator of a Group of Software Units>

This paragraph shall identify a software unit by project-unique identifier and shall describe the unit. The description shall include the following information, as applicable:

1. Unit design decisions, if any, such as algorithms to be used, if not previously selected
2. Any constraints, limitations, or unusual features in the design of the software unit
3. The programming language to be used and rationale for its use if other than the specified CSCI language
4. If the software unit consists of or contains procedural commands (such as menu selections in a database management system (DBMS) for defining forms and reports, on-line DBMS queries for database access and manipulation, input to a graphical user interface (GUI) builder for automated code generation, commands to the operating system, or shell scripts), a list of the procedural commands and reference to user manuals or other documents that explain them
5. If the software unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements and data element assemblies, as applicable (Paragraph 4.3.2 of this appendix provides a list of topics to be covered.)

    a. Data local to the software unit shall be described separately from data input to or output from the software unit.
    b. A corresponding Database Design Document (DBDD) shall be referenced, if the software unit is a database
    c. Interface characteristics may be provided here or by referencing section 4 or the corresponding Interface Design Documents (IDDs)
6. If the software unit contains logic, the logic to be used by the software unit, including, as applicable:

a. Conditions in effect within the software unit when its execution is initiated
b. Conditions under which control is passed to other software units
c. Response and response time to each input, including data conversion, renaming, and data transfer operations
d. Sequence of operations and dynamically controlled sequencing during the software unit's operation, including:

    1. The method for sequence control
    2. The logic and input conditions of that sequence control method, such as timing variations or priority assignments

e. Data transfer in and out of memory
f. The sensing of discrete input signals, and timing relationships between interrupt operations within the software unit
g. Exception and error handling

Alternatively, this paragraph may designate a group of software units and identify and describe the software units in subparagraphs. Software units that contain other software units may reference the descriptions of those units rather than repeating information.

6. Notes

This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

7. Documentation Improvement and Feedback

Comments and other feedback on this document should be directed to the DII COE Hotline:

Phone: 703-735-8681
Fax.: 703-735-3080
Email: HotlineC@ncr.disa.mil

A. Appendices

Appendices may be used, for convenience in document maintenance, to provide information published separately (e.g., charts, classified data). As applicable, each appendix shall be referenced in the main body of the document where the data would normally have been provided. Appendices may be bound as separate documents for ease in handling. Appendices shall be lettered alphabetically (A, B, etc.).

Appendix N: Interface Design Document (IDD) Sample Outline

This IDD outline contains the unique preparation instructions for the IDD. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diiidd.dot**, is available from DII COE CM for document developers to use.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system(s), the interfacing entities, and interfaces to which this document applies, including, as applicable, identification number(s), title(s), abbreviation(s), version number(s), and release number(s).

1.2 System Overview

This paragraph shall briefly state the purpose of the system(s) and software to which this document applies. It shall describe the general nature of the system and software; summarize the history of system development, operation, and maintenance; identify the project sponsor, acquirer, user, developer, and support agencies; identify current and planned operating sites; and list other relevant documents.

1.3 Document Overview

This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced Documents

This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Interface Design

This section shall be divided into the following paragraphs to describe the interface characteristics of one or more systems, subsystems, configuration items, manual operations, or other system components. If part or all of the design depends upon system states or modes, this dependency shall be indicated. If design information falls into more than one paragraph, it may be presented once and referenced from the other paragraphs. If part or all of this information is documented

elsewhere, it may be referenced. Design conventions needed to understand the design shall be presented or referenced.

3.1 Interface Identification and Diagrams

For each interface identified in 1.1, this paragraph shall state the project-unique identifier assigned to the interface and shall identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable. The identification shall state which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them). One or more interface diagrams shall be provided, as appropriate, to depict the interfaces.

3.2 <Project-unique Identifier of Interface>

This paragraph (beginning with 3.2) shall identify an interface by project-unique identifier, shall briefly identify the interfacing entities, and shall be divided into subparagraphs as needed to describe the interface characteristics of one or both of the interfacing entities. If a given interfacing entity is not covered by this IDD (for example, an external system) but its interface characteristics need to be mentioned to describe interfacing entities that are, these characteristics shall be stated as assumptions or as "When [the entity not covered] does this, [the entity that is covered] will …" This paragraph may reference other documents (such as data dictionaries, standards for protocols, and standards for user interfaces) in place of stating the information here. The design description shall include the following, as applicable, presented in any order suited to the information to be provided, and shall note any differences in these characteristics from the point of view of the interfacing entities (such as different expectations about the size, frequency, or other characteristics of data elements):

1. Priority assigned to the interface by the interfacing entity(ies)
2. Type of interface (such as real-time data transfer, storage-and-retrieval of data, etc.) to be implemented
3. Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

    a. Names/identifiers

        1. Project-unique identifier
        2. Non-technical (natural-language) name
        3. DOD standard data element name
        4. Technical name (e.g., variable or field name in code or database)
        5. Abbreviation or synonymous names

    b. Data type (alphanumeric, integer, etc.)
    c. Size and format (such as length and punctuation of a character string)
    d. Units of measurement (such as meters, dollars, nanoseconds)
    e. Range or enumeration of possible values (such as 0-99)

f. Accuracy (how correct) and precision (number of significant digits)
g. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply
h. Security and privacy constraints
i. Sources (setting/sending entities) and recipients (using/receiving entities)

4. Characteristics of data element assemblies (records, messages, files, arrays, displays, reports, etc.) that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as:

    a. Names/identifiers

        1. Project-unique identifier
        2. Non-technical (natural language) name
        3. Technical name (e.g., record or data structure name in code or database)
        4. Abbreviations or synonymous names

    b. Data elements in the assembly and their structure (number, order, grouping)
    c. Medium (such as disk) and structure of data elements/assemblies on the medium
    d. Visual and auditory characteristics of displays and other outputs (such as colors, layouts, fonts, icons and other display elements, beeps, lights)
    e. Relationships among assemblies, such as sorting/access characteristics
    f. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the assembly may be updated and whether business rules apply
    g. Security and privacy constraints
    h. Sources (setting/sending entities) and recipients (using/receiving entities)

5. Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as:

    a. Project-unique identifier(s)
    b. Communication links/bands/frequencies/media and their characteristics
    c. Message formatting
    d. Flow control (such as sequence numbering and buffer allocation)
    e. Data transfer rate, whether periodic/aperiodic, and interval between transfers
    f. Routing, addressing, and naming conventions
    g. Transmission services, including priority and grade
    h. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing

6. Characteristics of protocols the interfacing entity(ies) will use for the interface, such as:

    a. Project-unique identifier(s)

b. Priority/layer of the protocol
c. Packeting, including fragmentation and reassembly, routing, and addressing
d. Legality checks, error control, and recovery procedures
e. Synchronization, including connection establishment, maintenance, termination
f. Status, identification, and any other reporting features

7. Other characteristics, such as physical compatibility of the interfacing entity(ies) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

4. Requirements Traceability

This paragraph shall contain:

1. Traceability from each interfacing entity covered by this IDD to the system or CSCI requirements addressed by the entity's interface design
2. Traceability from each system or CSCI requirement that affects an interface covered in this IDD to the interfacing entities that address it

5. Notes

This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

6. Documentation Improvement and Feedback

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A. Appendices

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Appendix O: Errata Sheet (ES) Sample Outline

This ES outline contains the unique preparation instructions for the Errata Sheet. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **diies.dot**, is available from DII COE CM.

1. Scope

This section shall be divided into the following paragraphs.

1.1 Identification

This paragraph shall contain a full identification of the system(s), the version or maintenance release information to which the ES pertains, the software element or document affected, and a brief description of the problem for abstracting and indexing purposes.

1.2 System Overview

This paragraph shall briefly describe the system(s) and software to which this document applies, and list other relevant documents, if applicable.

1.3 Document Overview

This paragraph shall summarize the purpose and contents of this document and shall describe any security or privacy considerations associated with its use.

2. Referenced Documents

This section shall list the number, title, revision, and date of all documents referenced in this document. This section shall also identify the source for all documents not available through normal Government stocking activities.

3. Problem and Corrective Action Description

This section shall contain a description of each problem or known error sufficient to identify the problem and its impacts, and execute the corrective action. Safety precautions, marked by WARNING or CAUTION, shall be included where applicable. After each problem, there shall be instructions for recognizing, avoiding, correcting or otherwise handling the described problem. In addition, it will describe, where known, any steps being taken to resolve the problem, version where corrected, and description of solution implemented.

4. Notes

This section shall contain any general information that aids in understanding this document (e.g., background information, glossary, rationale). This section shall include an alphabetical listing of all acronyms, abbreviations, and their meanings as used in this document and a list of any terms and definitions needed to understand this document.

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A. Appendices

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Appendix P: Example Title Page

The Example Title Page contains the preparation instructions for the Title Page. See Section 3, the DII COE Documentation Format Requirements, for generic document requirements. A corresponding MS Word 6.0 template, **title.dot**, is available from DII COE CM. An example of the Title Page is provided in this appendix.

The Title Page shall identify the following items:

1. <Your Document Number (same as in header)>

The document number (as described in section 3.1.7) shall be stated in font Times Roman, Bold, and 12 point using center justification.

2. DII COE Identification Block

The first line shall read "Defense Information Infrastructure (DII)."
There should be a blank line, followed by the second line, "Common Operating Environment (COE)." These lines shall be in font Times New Roman, Bold, and 18.

3. <Your Document Title>

The common name or product name of the deliverable unit shall be stated in font Times New Roman, Bold, and 16 point using center justification.

4. <Name and Version of Software/Segment>

The title of the manual, plan, report, or other descriptive documentation shall be stated in font Times New Roman, Bold, and 16 point using center justification.

5. <Document Version (if applicable) Draft/Final>

The version number shall consist of the product version number and COE version number, as applicable, stated in font Times New Roman, Bold, and 16 point using center justification. Specification of "Draft", if applicable, is required, and "Final" is optional.

6. <Date>

The date shall be the date that this version of the document was completed, stated in font Times New Roman, Bold, and 16 point using center justification.

7. Prepared For Block

As indicated on the example, on line 30 (7.8” approx.) of the title page should appear the words "Prepared For:" followed by a blank line and the words "Defense Information Systems Agency." These lines shall be in font Times New Roman, Bold, and 12 point using center justification.

8. No Footer on Actual Title Page

A footer appears on the following example page, for purposes of incorporation into this document. No footer should be included on the actual document title page.

<Your Document Number (same as in header)>

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

<Your Document Title>
<name and version of software/segment>

<Document Version (if applicable)>

<Date>

Prepared for:

Defense Information Systems Agency

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